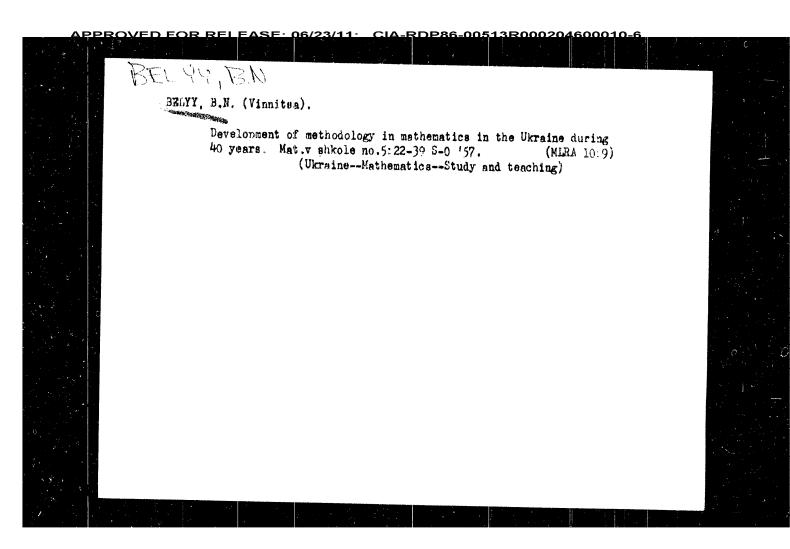
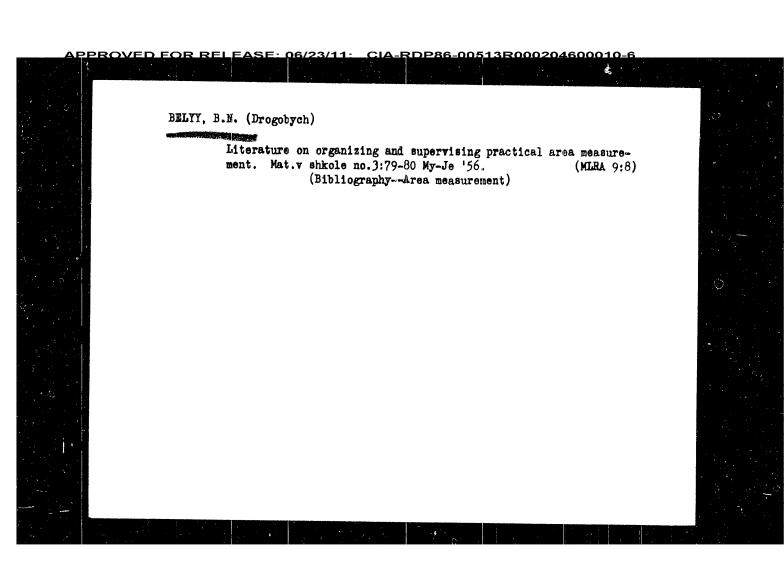
BELYY, B.N. BELYY, B.N. (Vinnitsa). Making use of tables in mathematics classes. Mat. v shkole no.1:8-11 Ja-F 158. (MIRA 11:1) (Mathematics--Tables, etc.)

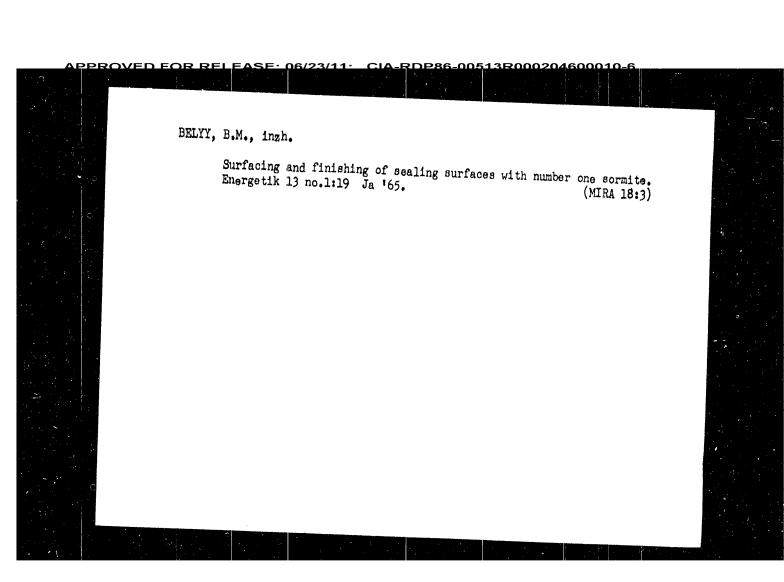


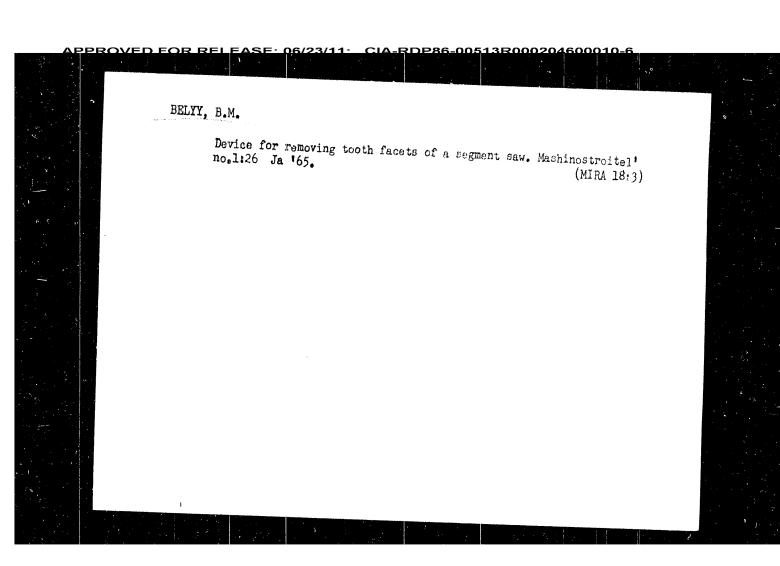


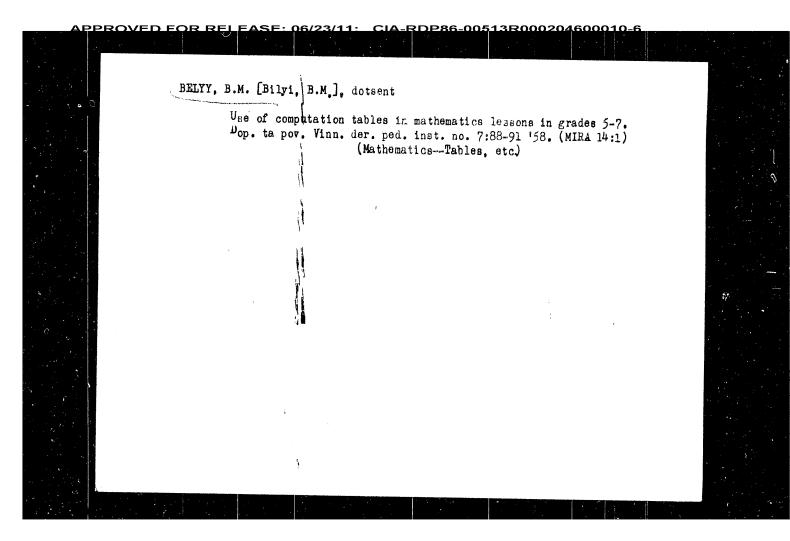
APPROVED FOR RELEASE: 06/23/11 BELYY, B.N. (Drogobych) Aleksandr Matveevich Astriab. Mat. v shkole no.5:73-75 5-0 '54. (Astriab, Aleksandr Matveevich, 1879-) (MLRA 7:11) BELYY, B.N. (Kiyev). With the Land Market and Land Various methods for the solution of problems for on-the-spot determination of inaccessible distances and heights. Mat. v shkole no.6:32-35 N-D '53. (MLRA 6:12) (Distances--Measurement)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204600010-6

L 02440-67 EWP(j)/EWT(1)/EWT(m)/T IJP(c) RM/WW ACC NR AP6018794 SOURCE CODE: UR/0314/66/000/002/0022/002 AUTHOR: Belyy, B. M. (Engineer) ORG: None TITLE: End sealing of centrifugal pump shafts SOURCE: Khimicheskoye i neftyanoye mashinostroyeniye, no. 2, 1966, 22-23 TOPIC TAGS: sealing device, shaft, centrifugal pump, graphitization, carbon, reinforced plastic, hydrocarbon, sulfuric acid, teflon made in single and double thicknesses with various friction pair materials depending The seals are on designation and working conditions. PK-O graphitized carbon is used where the pressure of the medium is not more than 1.0 kg/cm², while PT-1000 and 2PT-1000 graphitized carbon and ATM graphite-reinforced plastic are used at pressures up to 20 kg/cm² at a sliding rate of 8-12 m/sec. Left- and right-helix spring-reinforced seals are used in pumps transferring hydrocarbons, benzene, a-methylstyrene, copper ammonium Card 1/2 <u>62-762:621.671</u> SUB CODE: 13, 11/ בייא ניועטם







ZHDANOV, B.V.[deceased]; BELYY, B.D., inzhener, retsensent; MANAKIN, N.V., redaktor; MATVERSTA, Ie.H., tekhnicheskiy redaktor. [Servicing electric bridge and gantry cranes] Obslushivanie mosto-vykh i kozlovykh elektricheskikh kranov. Moskva, Gos. nauchno-tekhn. isd-vo mashinostroit. lit-ry, 1956. 118 p. (Granes, derricks, etc) (MIRA 9:5)

KHAZANOV, I.S.; KUCHERUK, V.V.; BELYANSKIY, P.P.; BELYY, B.D., inzhener, retsenzent; KUGINIS, B.L., inzhener, retsenzent; VINOGRADSKIY, N.V., dotsent, redaktor; MATVEYEVA, Ye.N., tekhnicheskiy redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor [Operation and repair of ventilation equipment in machinery factories] Ekspluatatsiia i remont ventiliatsionnykh ustanovok mashinostroitel'nykh zavodov. Moskva. Gos. nauchno-tekhn. izd-vo mashinostroitel'noi lit-ry, 1954. 203 p. (MLRA 8:4)

BATALOV, Nikolay Mikhaylovich; BELYY, Balentin Antonovich; IOFFE, Aleksandr Borisovich; RABINOVICH, Aron Abramovich; SINAYSKIY, Mikhail Mikhaylovich; IVANOV, V.M., red.; VORONIN, K.P., tekhn.red. [Blectric motors for cranes and metallurgical plants; theory, construction, use] Kranovo-metallurgicheskie elektrodvigateli; teoriia, konstruktsiia, primenenie. Pod obshchei red. A.A. Rabinovicha. Moskva, Gos. energ. izd-vo, 1958. 168 p. (MIRA 11:5) (Blectric motors)

LEVANOV, I.N., polkovnik, redaktor; BELYY, B.A., polkovnik, redaktor;
NOVIOSELOY, A.P., polkovnik, redaktor; ARISTOV, A.D., redektor;
VOLKOVA, V.Ye., tekhnicheskir, redaktor

[Marxism-Ieniniam on war and ormies] Marksizm-leninizm c voine i armii. Pod obshchei red. I.N.Levanova, B.A.Belogo i A.P.Novoselova, Moskva, Voen.izd-vo M-va obor.SSSR, 1957. 285 p. (MLEA 10:10)

1. Voyeuno-politicheskaya krasnoznamennaya akademiya imeni V.I.
Lenina

(War) (Armies)

NIKOLENKO, V.I.; PANFILOVA, I.P.; PAKHOMOV, V.I.; BELYY, A.P.

Properties of KF-9 high-frequency molding composition. Flast.massy no.4:
(MIRA 16:4)

(Flastics)

(Electric insulators and insulation)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204600010-6

Properties of high-frequency...

S/191/63/000/004/007/015 B101/B186

E=3.2; E=19.7; $\sigma_1=31.5$; $\sigma_0=390$; $\sigma_0=476$. After 2160 hrs of tropical humidity: $q_v=2\cdot10^{14}$; $q_s=2\cdot10^{14}$; tan $\delta=0.0100$; $\epsilon=3.25$; E=16.9. The dielectric properties of KF-9 changed only slightly after 1500 hrs of ageing at 300°C and subsequent storage for 100 hrs in the moist chamber, containing 98% moisture. The loss in weight was 0.57-0.90% after 10 hrs at 300° C and 0.7-1.25% after 210 hrs. The material can be

used for 1000 hrs at temperatures between -60 and +250°C, withstanding +300°C for one hour. The material is not liquid when cold, and can be processed by molding or compression molding (different to ftoroplast-4 (Teflon-4)). There are 4 figures and 3 tables.

Card 2/2

BELYY, A.P.

8/191/63/000/004/007/015 B101/B186

AUTHORS:

TITLE.

Nikolenko, V. I., Panfilova, I. P., Pakhomov, V. I., Belyy, A. P.

Properties of high-frequency Ko-9 (KF-9) molding material

Plasticheskiye massy, no. 4, 1963, 25 - 26 PERIODICAL:

TEXT: The physicomechanical and dielectric properties of the high-frequency thermosetting KF-9 material were tested. Its dielectric properties are similar to those of polytetrafluoroethylene. For the initial material, the following data are given: $Q_{V} = 2.10^{16}$ ohm.cm; surface resistivity $Q_{S} = 2.10^{16}$ ohm; tan $\delta = 0.00626$ at 10^{6} ops; dielectric constant $\varepsilon = 3.02$; breaking voltage E = 17.05 kv/mm; impact strength $d_{i} = 35.0$ kg·cm/cm²; bending strength $\sigma_b = 479 \text{ kg/cm}^2$; compressive strength $\sigma_c = 356 \text{ kg/cm}^2$. After a threefold thermal shock by changing the temperature from +360°C to -60°C, the values changed as follows: $Q_v = 1.10^{15}$; tan $\delta = 0.00427$; Card 1/2

SELYY AP.

37754

\$\frac{3}{651/61/000/006/005/031} \frac{2}{11.0250/D302}

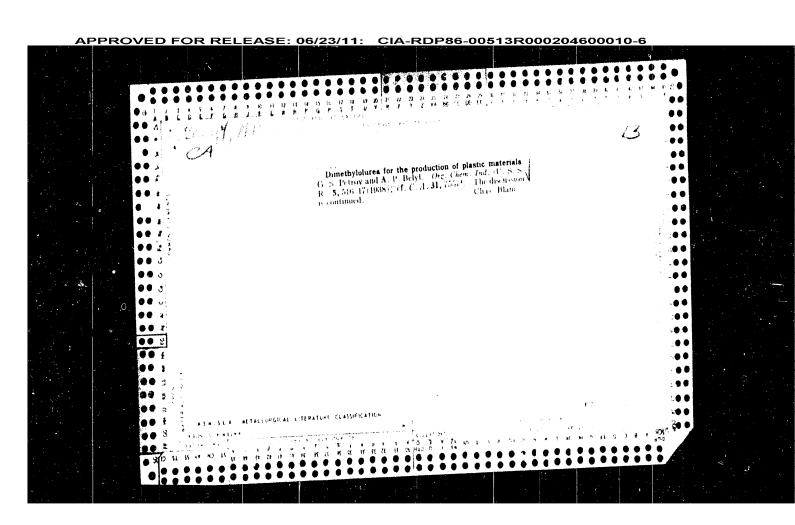
AUTHORS: Lobusevich, N. F., Trofimova, I. V., Andrianov, K. A., Colubtsov, S. A. and Belyy, A. P.

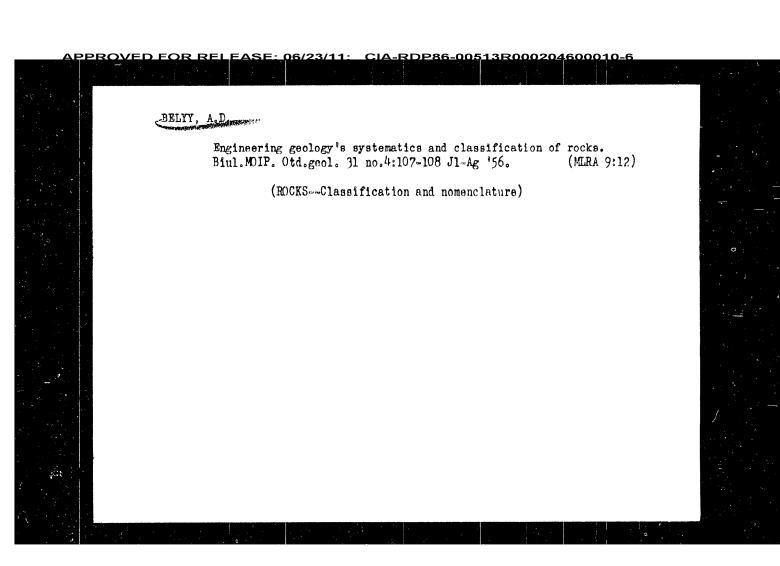
TITLE: Influence of some metal additives on the activity of silicon-copper alloys in the synthesis of methyl chlorosilanes

SOURCE: Khimiya i prakticheskeye primeneniye kremneorganicheskikh soyedineniy; trudy konferentsii, no. 6, Doklady, kikh soyedineniy; trudy konferentsii, no. 6, Doklady, diskussii, resheniye. II Vees, konfer, po khimii i prakt. prim. kremneorg, soyed., Len., 1958. Leningrad. Izd-yo AN SSSR, 1961, 28-31

TEXT: The influence of impurities commonly encountered in silicon (Al, Fe, Ga) and copper (Bi, Sn, Fb) on the activity of silicon-copper alloys used in methyl chlorosilane synthesis was investigated. Two series of alloys were prepared: 1) From purified Si with test. Two series of alloys were prepared: 1) From purified Si with less than 0.2% of impurities; 2) from Kp-4 (Kr-1) silicon with 2% impurities. These alloys, notwithstanding the identical procedure Card 1/2

FLID, R.M.; KRASOTKIN, A.Ye.; SHPICHINETSKAYA, L.S.; CHIRIKOVA, A.V.; BELTY, A.P.; BARATS, M.I.; KRUPTSOV, B.K.; BELYANINA, Ye.T. Effect of alcaline admixtures on catalytic oxidation of primary alcohols to aldehydes. Khim.nauk i prom. 3 no.5:683 158. 1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova. (Alcohol) (Oxidation) (Catalysts)

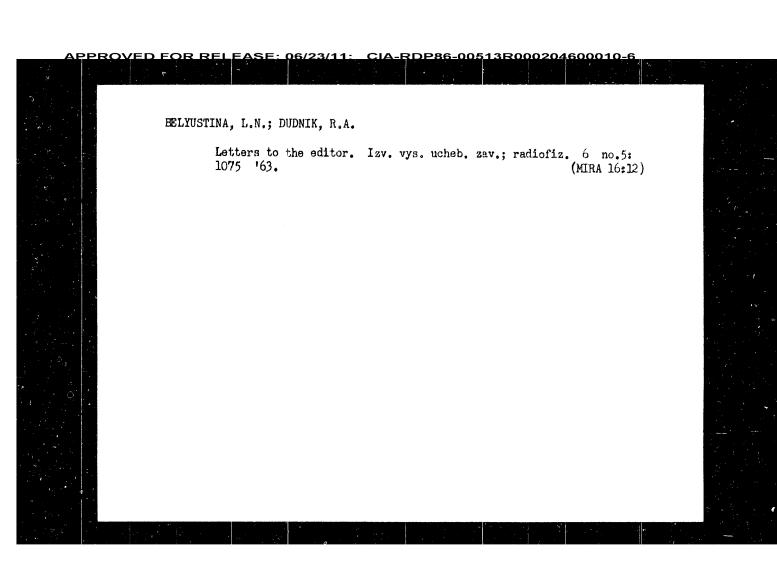


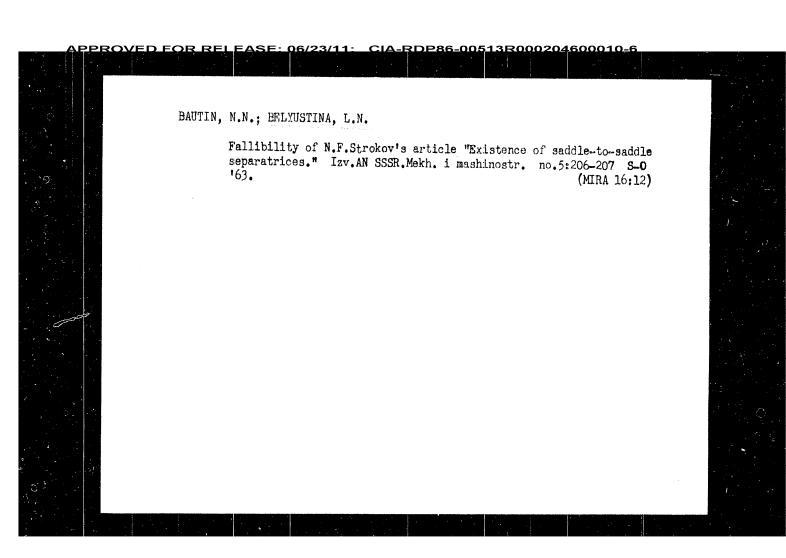


BELTY, A. [Bilyi, A.]

We are changing over to the production of hallow bricks. Sil'.bud.
9 no.10:9 0 '59. (MHA 13:3)

1. Glavmyy inzhoner Starokozatskoy mezhkolkhoznoy stroitel'noy organizataii Odesskoy oblasti.
(Starokazachye---Hollow bricks)





BELYUSTINA, L. N. (Gor'ky) "Qualitative investigation of non-autonomous periodical systems close to rough autonomous systems" report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 1964.

Small periodic perturbations ...

S/020/63/148/002/002/037 B187/B112

that enclose non-singular trajectories, then at sufficiently small $\mu \neq 0$, the singular integral areas which in the x_1, x_2, t -space originate from solutions of the perturbed systems and whose initial values belong to singular invariant curves, divide the region $C_{\hat{t}}$ into subregions such that every subregion encloses only solutions of the perturbed system with equal asymptotic behavior. For μ = 0, these subregions are transformed into subregions existing for the rough autonomous system in the x_1, x_2, t -space.

ASSOCIATION:

Issledovatel'skiy fiziko-tekhnicheskiy institut Gor'kovskogo gosudarstvennogo universiteta im. N. I. Lobachevskogo (Research Physicotechnical Institute of Gor'kiy State University imeni N. I. Lobachevskiy)

PRESENTED:

July 7, 1962, L. S. Pontryagin, Academician

SUBMITTED:

June 30, 1962

Card 2/2

45151

s/020/63/148/002/002/037 B187/B112

AUTHOR:

Belyustina, L. N.

TITLE:

Small periodic perturbations of a rough autonomous system

PERIODICAL:

Akademiya nauk SSSR. Doklady, v. 148, no. 2, 1963, 251-254

TEXT: For the qualitative study of non-autonomous systems an important election of singular manifolds of the phase space is made, which divide frome one another those domains that have solutions of different asymptotic behavior. For this purpose, a specialization of results by N. Levinson (Ann. of Math., v. 52, no. 3, 1950) and a study of mappings produced by the solutions of the set of equations and of their fixed points are used. $\frac{dx_i}{dt} = X_i(x_1, x_2) + \mu R_i(x_1, x_2, t) \text{ with } i = 1, 2 \text{ is the perturbed system,}$ and $\frac{dx_i}{dt} = X_i \text{ is the rough autonomous system. } G_t\left\{(x_1, x_2) \subset G, -\infty < t < + \infty\right\}$ is the domain of definition; $R_i = \text{periodic functions of } t, \text{ and } X_i \text{ and } R_i$ belong to the class $C^{(3)}$. If the singular trajectories of the rough autonomous system divide the domain G of the x_1, x_2 -plane into subregions card 1/2

BATALOVA, Z.S.; BELYUSTINA, L.N. Study of a monlinear system on torus. Izv. vys. ucheb. zav.; radiofiz. 6 no.1:149-165 '63. (MIRA 16'7) 1. Nauchno-lasledovatel'skiy fiziko-tekhnicheskiy institut pri Gor'kovskom (iniversitete. (Differential equations)

ARONOVICH, G.V.; EELYUSTINA, L.N.; KARTVELISHVILK, N.A.; LYUBIMTSEV, Ya.K. Problems of the stability of stationary operating conditions of hydroelectric generating stations and power systems viewed as problems of the theory of oscillations. PMTF no.3:56-73 S-0 '61. (MIRA 14:8) (Hydroelectric power stations) (Oscillations)

BELYUSTINA, I. N. and ANDRONOVA-LEONTOVICH, YE. A. "The theory of bifurcation of the dynamical systems of the second order and its application to the investigation of the nonlinear problems of the theory of oscillations." Paper presented at the Intl. Symposium on Nonlinear Vibrations, fiev, USSR, 9-19 Sep 61 descerch Institute of Technical Physics, Gorky State University, Gorky

BELYUSTINA, L. N., KARTVELISHVILI, N. A., LYUBINTSEV, YA. E. and AROPOVICH, V. /. "Application of oscillatory system analysis to stability problems in the steady-state operation of hydroelectric stations and power system." Paper presented at the Intl. Symposium on Monlinear Vibrations, Riev, USSR, 9-19 Sep 61 Research Institute of Technical Physics, Gorky State University, Gorky

86870

S/141/60/003/005/025/026
E192/E382

Excitation of Oscillations in a Nonlinear Phase-type Automatic Frequency Control System with a Lagging Argument

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-tekhnicheskiy institut pri Gor'kovskom universitete (Scientific Research Physico-technical Institute of Gor'kiy University)

SUBMITTED: June 28, 1960

Card 6/6

PPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204600010-6

86870

S/141/60/003/005/025/026 E192/E382

Excitation of Oscillations in a Nonlinear Phase-type Automatic Frequency Control System with a Lagging Argument

for a fixed k, is shown in a figure. When the curve is intersected between $d < d_E$ and $d > d_E$, the real part of one of the roots of Eq. (4) changes its sign and becomes positive. The differential stability of Eq. (2) is therefore determined by:

$$0 \ll \gamma \ \zeta \ 1; \quad 0 \ll d \ \zeta \ d_E$$
 (6).

There are 1 figure and 4 Soviet references.

Card 5/6

86870 s/141/60/003/005/025/026 E192/E382

Excitation of Oscillations in a Nonlinear Phase-type Automatic Frequency Control System with a Imaging Argument the equation for $\ \lambda_{k}^{}$ is in the form:

$$r^2 + kT^Tr + \gamma_2 e^{-r} = 0$$
 (4)

 $r^{2} + kT^{\dagger}r + \gamma_{2}e^{-r} = 0$ (4) where $r = \lambda T^{\dagger}$ and $\gamma_{2} = \sqrt{(1 - \gamma^{2})} T^{\dagger}$. By assuming

that $r = i\omega$, a curve can be plotted in the space of the parameter γ and $d = T^{\epsilon}/k$. Purely imaginary roots defined by:

by:

$$\gamma = \sqrt{1 - k^4/tg^2 \omega \sin^2 \omega} ; \quad d = (\omega/k^2) tg \omega \quad (5)$$

correspond to the points of this curve. The curve contains an infinite number of branches, each of which correspond to a certain interval $\,\omega$. The branch E of the curve defined by Eqs. (5), which is nearest to the axis d = 0Card 4/6

86870

S/141/60/003/005/025/026 E192/E382

Excitation of Oscillations in a Nonlinear Phase-type Automatic Frequency Control System with a Lagging Argument

where $p' = \sqrt{T/\Omega} p$, $k = 1/\sqrt{T\Omega}$, $T' = \sqrt{\Omega/T} T_1$,

 $\gamma=\delta\omega/\Omega$. This nonlinear equation for T'> 0 is equivalent to the nonlinear differential equation of the infinite order. Eq. (2) can be linearised and this procedure leads to two linear equations with a lagging argument:

$$d\phi_1/dt = y, \quad dy/dt = -\lambda \gamma - \sqrt{1 - \gamma^2} \phi_1(t - T')$$
 (3)

where $\phi_1 = \phi$ " ϕ_0 where $\phi_0 = \arcsin \gamma$ (0 $\ll \phi_0 \ll \pi/2$). By assuming that the solution of Eqs. (3) is in the form of:

$$\varphi_1 = \sum_{Ake}^{\lambda_k t}, \quad y = \sum_{Bke}^{\lambda_k t}$$

Card 3/6

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S/141/60/003/005/025/026 E192/E382

Excitation of Oscillations in a Nonlinear Phase-type Automatic Frequency Control System with a Lagging Argument

where $F(\phi)$ is the nonlinear phase characteristic,

φ is the phase difference between the controlled and the standard oscillator,

is the maximum detuning produced by the phase

detector and the reactance tube, and $\delta\omega$ is the detuning of the controlled oscillator with

respect to the standard. Eq. (1) takes into account the delay produced by the delay network. If the phase characteristic $F(\phi)=\sin\phi$

and K(p) = 1/(1 + Tp), where T is a time constant,

Eq. (1) can be written as:

$$p'^{2}_{\varphi} + kp'_{\varphi} + e^{T'p'} \sin \varphi = \gamma \qquad (2)$$

Card 2/6

S/141/60/003/005/025/026 E192/E382

6.4420

AUTHOR: Belyustina, L.N.

TITLE: Excitation of Oscillations in a Nonlinear Phase-type

Automatic Frequency Control System with a Lagging

Argument

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1960, Vol. 3, No. 5, pp. 909 - 911

TEXT: The time delay in phase-type automatic frequency control systems can be taken into account by considering the effect of the inertia due to the selective properties of the resonant circuits. The transfer function of an ideal delay element

should be e where T is the delay time. The differential equation of a phase-frequency control system with a low-frequency filter, whose transfer coefficient is K(p), is

$$p\varphi + \Omega K(p)e^{-T_1 p} \qquad (1)$$

Card 1/6

Determining The Qualitative Structure of a "Coarse" Dynamic System by Means of Approximate Plotting of Singular Trajectories

analogous "analytical measure". An approximate solution to Eq (1) can be found, called an ε -solution, and the procedure is to be found in Ref 8. It is repeated here for equilibrium points, saddle points (Figure 2) and limit cycles. In connection with the latter, two theorems are put forward: the qualitative structure of a plane region can be divided up into trajectories in a finite number of operations with sufficient accuracy depending on the geometric measure of coarseness: the same procedure for a "fine" system defined by Eq (1) and with n > 1 is not possible. The assistance of Ye.A. Andronova-Leontovich is acknowledged. There are 9 figures and 13 Soviet

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-tekhnicheskiy institut pri Gor'kovskom universitete (Physico-technical Scientific Research Institute of Gor'kiy University) SURMITTED:

April 10, 1959

Card 3/3

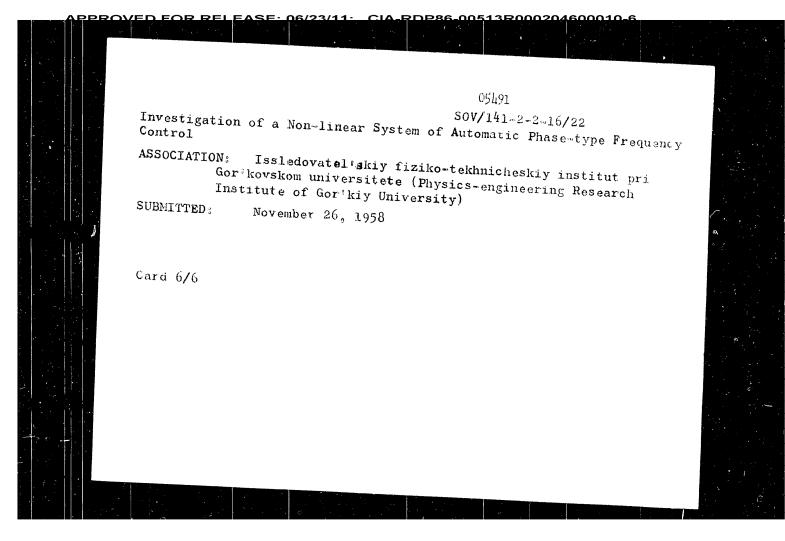
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Determining the Qualitative Structure of a "Coarse" Dynamic System by Means of Approximate Plotting of Singular Trajectories

is finite. Throughout the analysis an important part is played by the idea of the "canonical region" adjacent to an equilibrium point or limit cycle. To be canonical, a region must contain a focus or node and satisfy two conditions: a) apart from the singularities mentioned there should be no other singular trajectory; b) if a singular trajectory does come into the region when the variable t increases or decreases, then for a further change in t it can no longer come out of the region. If the conditions are satisfied for a saddlepoint the region is said to be a circular region of the point. Geometrical illustrations of the definitions are given in Figure 1. In Figure 1B for example, the regions and δ_2 are canonical but δ_3 is not. According to Ref 1, the phase-plane may be completely described by trajectories if four conditions (which are quoted) are observed. The idea of a "geometrical measure of coarseness" is introduced and reference made (footnote p 641) to an

Card2/3

69957 16,4500 SOV/141-2-4-12/19 Belyustina, L.N. AUTHOR: Determining the Qualitative Structure of a "Coarse" TITLE: Dynamic System by Means of Approximate Plotting of Singular Trajectories VP Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, PERIODICAL: 1959, Vol 2, Nr 4, pp 638 - 653 (USSR) ABSTRACT: The paper was presented at a scientific conference at Gor'kiy University on the 40th anniversary of the Revolution (December 20, 1957). The system is described by the first-order equations of Eq (1) and a modification to the system by Eq (2). The functions P, Q, p and q are defined within the region G in the plane x, y. The region is bounded by a simple closed curve g forming a non-contact cycle. It is assumed that the system defined in Eq (1) is "coarse". Refs 3 and 4 define "coarse" systems and distinguish between them and "fine" systems. All the equilibrium states and limit cycles of a coarse system are simple and semi-separatrices do not extend between saddle-points; hence the number of singular trajectories Card1/3



sov/141-2-2-16/22

Investigation of a Non-linear System of Automatic Phase-type Frequency Control

first kind. Secondly, the amplitude of ϕ in the unstable region increases as $|\phi|$ = arc cos (1/d) . Finally, the system does not contain any semi-stable limit cycles of the second kind. The stable equilibrium states of the system correspond to the steady-state operation of the system at a constant phase difference and a zero frequency difference (synchronism). The limit cycle of the first kind represents the steady-state operation in the presence of beats, which produce periodic phase and frequency deviations in the vicinity of the constant phase and zero frequency difference. The stable limit cycle of the second kind corresponds to the beats-type operation when a periodic frequency difference is encountered in the presence of an infinitely increasing phase difference.

There are 11 figures and 19 references, of which 14 are Soviet, 3 Italian and 2 German.

Card5/6

sov/141-2-2-16/22

Investigation of a Non-linear System of Automatic Phase-type Frequency Control

 λ and d (see Figure 6). Figure 7 shows the sections $\gamma = const.$ and d = const. of the surface $\lambda = \lambda_0 (\gamma, d)$

which were obtained by constructing the separatrices joined to saddle points. For d>1, there exists a bifurcation surface W , where the separatrix of the saddle point at $z \ge 0$ proceeds from the saddle to the same saddle point and envelopes the cylinder. Various cases of the bifurcation surface are illustrated in Figures 10. The limit cycles for d lying in the interval from zero to one can be determined by means of the Bendikson (Refs 5 and 16) criterion. It is found that the system has no limit cycles of the first kind but it possesses one limit cycle of the second king; the cycle is unique. For d > 1 , the Bendikson criterion is inapplicable. A different approach is therefore employed (A.A. Andronov et al. ... Refs 14,17,18) and it is shown that the system contains the limit cycles of the first and the second kind. The instability region is contained inside the cycle of the

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SOV/141-2-2-16/22

Investigation of a Non-linear System of Automatic Phase-type Frequency Control

is a focus or a node. This is illustrated in Figure 2, which represents a surface $\delta=0$ which separates the region $\delta \geq 0$ of the space of the parameters γ , λ , d from the region $\delta \leq 0$. The critical directions \mathcal{K}_{10}

of the saddle $(\phi_1,\ 0)$ are determined by Eq.(6). They determine the directions of the tangents to the separatrices at the saddle. The separatrices of the saddle $(\phi_1,\ 0)$

having negative slopes are denoted by s_1 and s_2 (in

the upper semi-plane), while those with the positive slopes are denoted by S_3 and S_4 (in the lower semi-plane).

For the case of $\lambda \neq 0$ and d lying between zero and one, the separatrices are in the form of the solid curves shown in Figures 3 (the dotted curves represent the conservative system). A surface W is introduced; this is represented by the equation $\lambda = \lambda_0$ (γ , d) and

Card3/6 represents a surface in the space of the parameters

05491 SOV/141-2-2-16/22

Investigation of a Non-linear System of Automatic Phase-type Frequency Control

> $z = d\phi/dt$, Eq (1) is written as Eqs (2). The equivalent differential equation to be solved is therefore in the form:

$$dz/d\varphi = \left[\gamma - \sin \varphi - \lambda(1 - d \cos \varphi)z \right] /z \tag{5} .$$

The phase space of such a system is in the form of the surface of a circular cylinder whose axis is parallel to the axis z. The qualitative analysis of Eq (3) permits the division of the space of the characteristic parameters of the system into regions where the system has various operating conditions. When $\frac{1}{2} = 0$, the system is conservative and z is given by the second equation on p 278. The co-ordinates of the equilibrium states are determined by Eqs (4). The phase trajectoriss for this case are illustrated in Figures 1. When $\lambda \neq 0$ and $extbf{d} \geqslant extbf{0}$, the coverdinates of the equilibrium states of the system can again be determined by means of Eqs (4). The equilibrium state $(\phi + 1 + c)$ for any $d \neq 0$ and $\phi \leqslant 1$ Card2/6 is in the form of a saddle. The equilibrium state $(\phi_{\alpha}, 0)$

AUTHOR: Belyustina, L.N.

05491 SOV/141-2-2-16/22

TITLE:

Investigation of a Non-linear System of Automatic Phase-type Frequency Control

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Radiofizika. 1959, Vol. 2, Nr. 2, pp 277 - 291 (USSR)

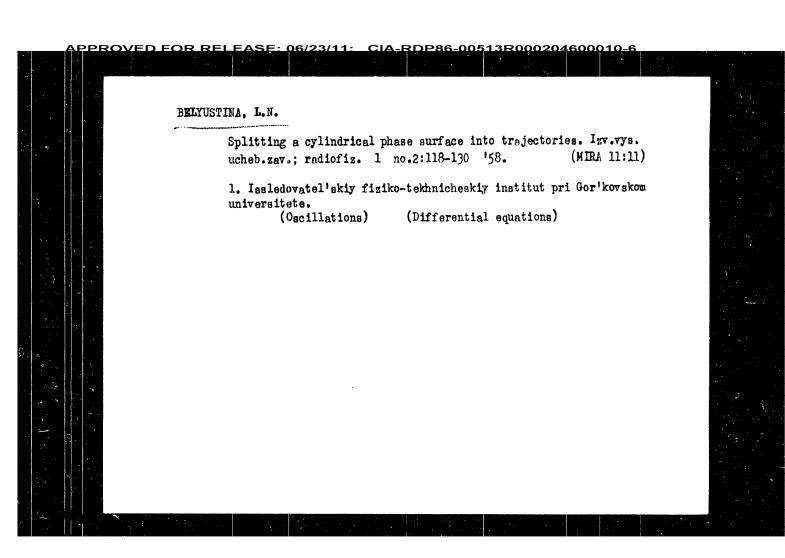
ABSTRACT: The differential equation of the system with a delay can be written as (M.V. Kapranov - Ref 1):

$$p\phi + Q(1 - T_1 p)K(p)F(\phi) = \delta \omega \qquad (1)$$

where ϕ is the difference between the phases of the oscillations of the tuned and the standard oscillators. K(p) is the transfer function, $F(\phi)$ is the characteristic of the phase detector, -12 is the maximum detuning of the system produced by the phase detector and the reactance tube, $T_{1}^{}$ is the delay time and $\delta\omega$ is the detuning of

the controlled generator, relative to the standard oscillator. It is assumed that $F(\phi) = \sin \phi$ and $K(p) = (Tp+1)^{-1}$ where T is the time constant. By introducing the notation $\gamma = \delta \omega / \Omega$, $\gamma_{c} = \sqrt{D/T}$, $\lambda = 1/\sqrt{D/T}$, $d = \Omega T_1$ and

Card1/6



OVED FOR RELEASE: 06/23/11: CIA-RDP86=005/13R0002046000/10-6

BELYUSTINA, L. N.

"On the Dynamics of a Symmetrical Flight of an Airplane," by L. N. Belyustina, Gor'kiy, <u>Izvestiya Akademii Nauk SSSR</u>, Otdeleniye Tekhnicheskikh Nauk, No 11, Nov 56, pp 3-27

This work investigates the problem of the possible motions of an airplane in the vertical plane with a constant angle of incidence, under the action of propeller pull and frontal resistance. It presents a qualitative investigation of differential equations of motion. On the basis of the study of the bifurcation of the system the parameter planes are broken down into regions corresponding to the various motions of the airplane.

If propeller pull and drag are taken into account, the equations of motion cannot be integrated in quadratures.

The article presents the solution of problems on the possible motion of an airplane in the vertical plane in the general case: under the action of propeller pull and drag. A table is presented which determines the trajectories of aircraft flight for various types of phase trajectory systems.

Sum 1239

OVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204600010-6

BELYUSTINA, L. N

124-1957-2-1485 D

Translation from Referativnyy zhurnal. Mekhanika, 1957, Nr 2, p 6 (USSR)

AUTHOR: Belyustina L.N.

TITLE: Qualitative Investigation of Dynamic Systems Having a Cylindrical Phase Surface (Kachestvennoye issledovaniye dinamicheskikh

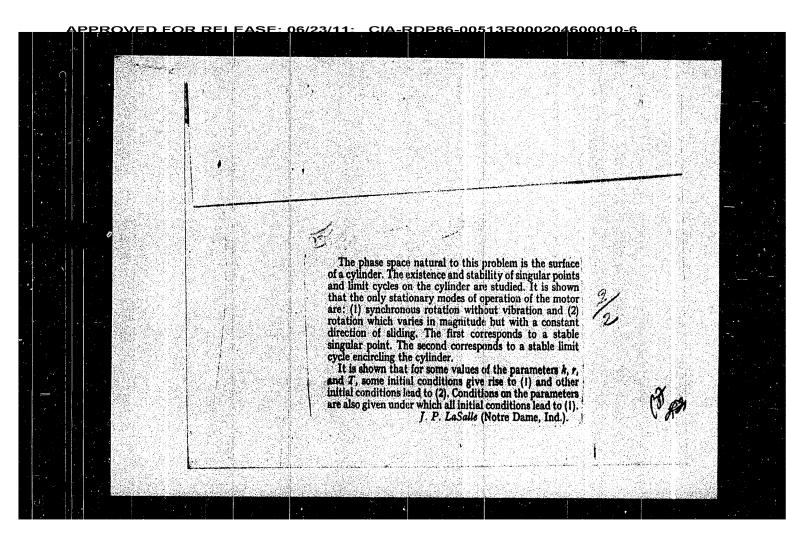
sistem s tsilindricheskoy fazovoy poverkhnost'yu)

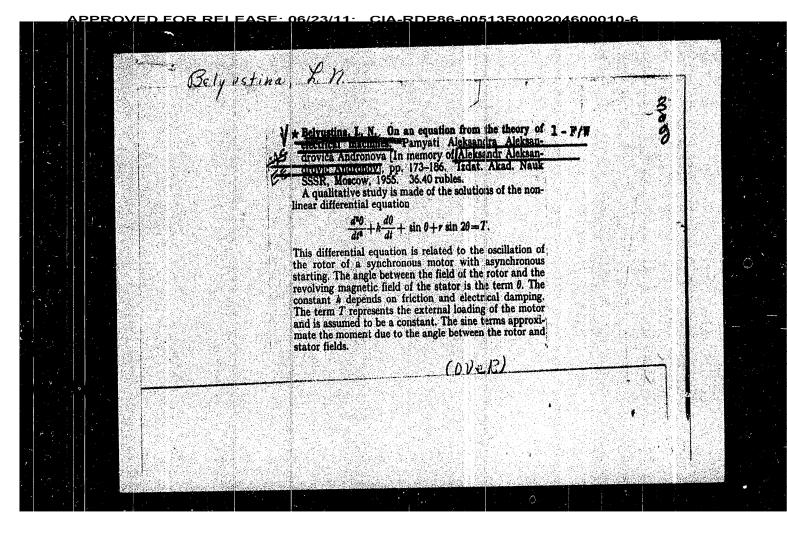
ABSTRACT Bibliographic entry on the Author's dissertation for the degree of Candidate of Physico-Mathematical Sciences, presented to the Gor'kovsk un-t (Gor'kiy University), Gor'kiy, 1956

ASSOCIATION: Gor'kovsk. un-t (Gorkiy University), Gor'kiy

1. Dynamics 2. Mathematics

Card 1/1





BELYUSTINA, L.N.
USSK/Mathematics - Qualitative topological behavior

FD-848

Card 1/1

: Pub. 85 - 13/14

Author

: Belyustina, L. N. (Gor'kiy)

Title

: Conditions for the existence of a center

Periodical

: Prikl, mat. i mekh., 18, 511, Jul/Aug 1954

Abstract

: Gives the conditions for the existence of a center at the point (0,0) for the nonlinear differential equation: $dy/dx = (-x - Ax^2 - Bxy - Cy^2)/(y - Dx^2 - Exy - Fy^2)$ in terms of the coefficients A, B, C, D, E, F. Notes that N. A. Sakharnikov also treated this problem (PMM, 12, 1948).

Institution

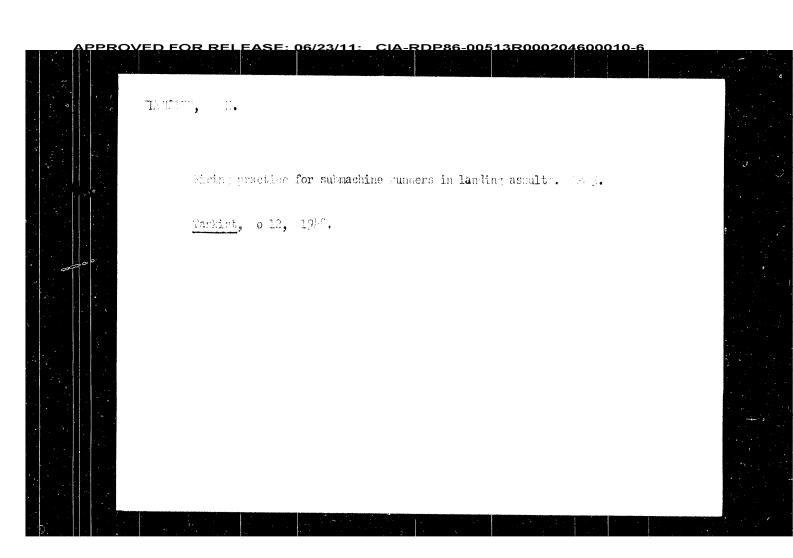
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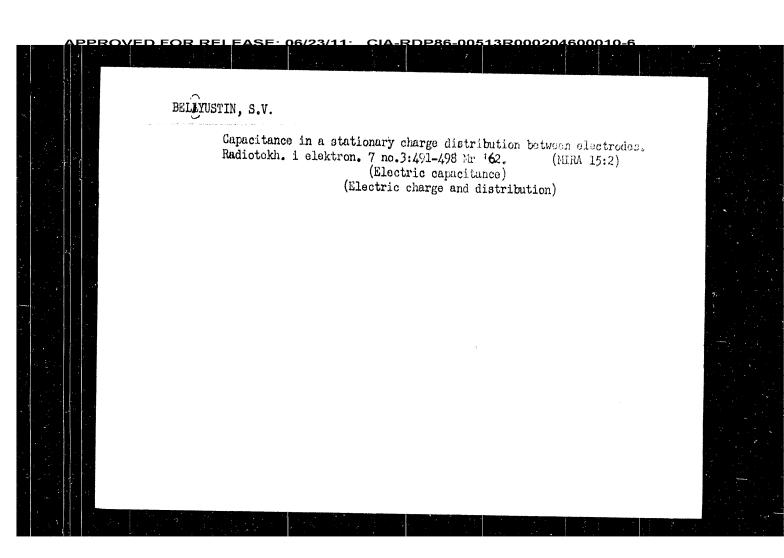
: November 23, 1953

APPROVED FOR RE	EASE: 06/23/11: CIA-RDP86-00513R000204600010-6
TSSR.	Belyustina, L. N. On the stability of the operating rigime of a sintent-pole synchronous motor. Izv. Akad. Nauk SSSR. Otd. Tehn. Nauk 1954, no. 10, 131-140 (1954). (Russian) The nuthor considers the differential equation $\theta + k(1 - b \cos 2\theta)\theta + \sin \theta + r \sin 2\theta = T$ where k , b , r and T are constants and $\theta = d\theta/dt$. Setting $\theta = s$, the equation is replaced in the usual way by a pair of first-order autonomous equations in the (k, θ) phase-plane which are studied by considering the nature of size singular points in the phase-plane. N. Levinson (Gaggeridge, Mass.)
Garage and the state of the sta	

1. BELYUSTINA, L. N.; ARONOVICH, G. V.
2. USSR (600)
4. Water towers
7. On the stability of fluctuations of the level in a surge tank, Inzh. sbor., No. 13, 1952.

9. Monthly List of Russian Accessions, Library of Congress, April, 1953, Uncl.





OVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204600010-6

L 21124-66

ACC NR: AP6011960

The effect of KOH (NaOH behaves similarly) is much more complex. As the pH rises, the growth rate of all faces decreases, and the growth rate of the (100) face experiences a rather abrupt drop almost to zero, apparantly due to the formation of a new substance.

Borax has the most complicated decelerating influence on the growth rates. Similarity of its effect on the (100) and (211) faces with that of Bismarck brown indicates that they act in the same fashion despite the fact that they have no other apparent similarity.

Conclusions reached indicate that absorption of the impurity on the crystal faces (primarily the cubic) strongly affects growth rates either directly or through the chemical formation other substances. The faces (111), (221), and (110) are actively affected by the pH of the solution. Large ion concentrations affect all faces more or less uniformly. The authors thank Academician A. V. Shubnikov for discussions and valuable advice. Orig. art. has: 2 figures. [JPRS]

SUB CODE: 20, 07 / SUBM DATE: OSJul64 / ORIG REF: 005 / OTH REF: (NI

Card 2/2 dill

21124-66 ACC NR: AP6011960 SOURCE CODE: UR/0070/65/010/003/0362/0367 Portnov, V. N.; Belyustin, A. V. AUTHOR: ORG: Gor'kly Physicotechnical Research Institute (Gor'kovskiy issledovatel'skiy fiziko-tekhnicheskiy institut) TITLE: Effect of impurities on rate of growth of aluminum potassium sulfate crystal faces from solution SOURCE: Kristallografiya, v. 10, no. 3, 1965, 362-367 TOPIC TAGS: crystal growth, crystallization, crystal impurity, crystal surface, sulfuric acid ABSTRACT: The method of spherical crystallization was used to study the growth rate of the (111), (110), (100), (221), and (211) faces of KA1(SO₄)₂ 12H₂O from solutions in the presence of CuSO4.5H2O, H2SO4, Bismarck-brown dye, KOH, NaOH, and Borax. The initial spherical form provides many faces for measurement, and the spherical shape is maintained because the growth rate of the faces depends strongly on the shape of the crystal. Growth rates of the different faces as a function of concentration are plotted for the various impurities. Na2SO4 and CuSO4.5H2O behave similarly in that they decelerate the growth rate of all faces more or less uniformly with increasing concentration. H2SO4, on the other hand, slightly accelerates the growth of all faces, especially the (221) face. Bismarck brown seriously damagas the (211) and (221) faces and severely decelerates the growth of the other faces, apparently because it is absorbed on the crystal surfaces. Card 1/2 UDC: 548.523

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204600010-6

L 5081-66 EWT(1)/T IJP(c) GG ACC NR. AD5024550

UR/0070/65/010/005/0743/0745

AUTHOR: Belyustin, A.V.; Stepanova, N.S.

TITLE: Method of growing crystals from solutions under static conditions

SOURCE: Kristallografiya, v. 10, no. 5, 1965, 43-745

TOPIC PAGS: crystal growing, thermostat, potassium compound

ABSTRACT: An earlier article (A. V. Belyustin, Kristaliografiya, 6, 5, 807-808, 1961) described a very simple method of growing crystals from solutions under static conditions with an hermostating (at room temperature). In the present paper, some improvements and modifications of this method are discussed. They concern primarily the insert of the crystallizer; the principle of the method and the shape of the crystallizer remain the same. Another improvement is the addition of thermostating; a suitable thermostat is described. The constant temperature and unchanging supersaturation achieved through the use of this thermostat minimize the strains in the crystals, and there are other practical advantages such as the simultaneous growing of a large number of crystals in separate crystallizers, small volume of solution, etc. Crystals of potassium phosphate dihydrate grown by this technique are illustrated. Orig. art. has: 2 figures.

ASSOCIATION: Gor'kovskly issledovatel'skly fiziko-tekhnicheskiy institut (Gorkly Physico-technic Research Institute)

SUBMITTED: 25Nov64

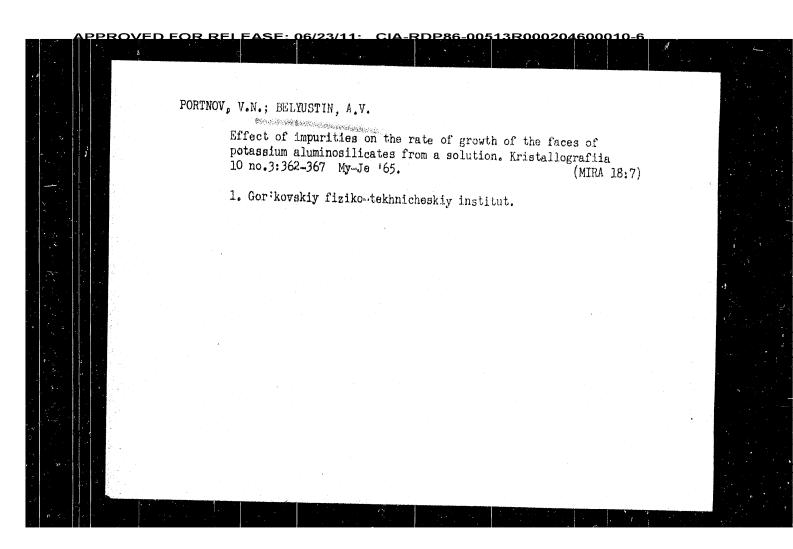
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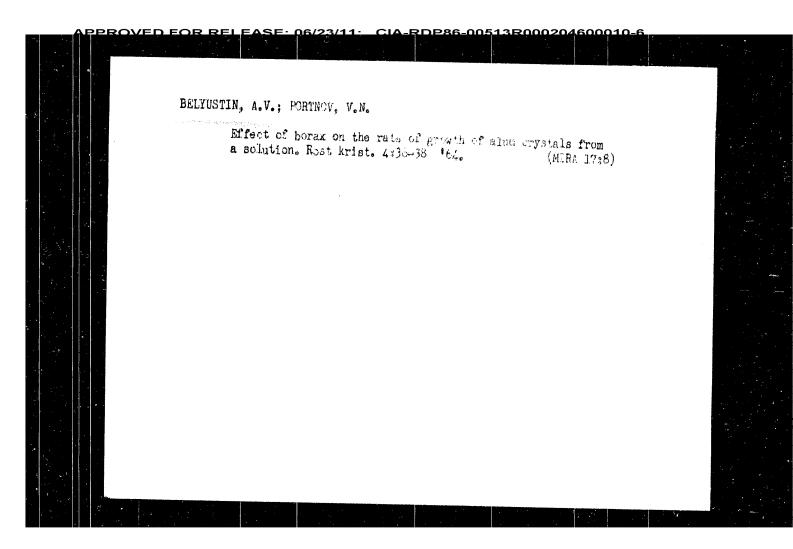
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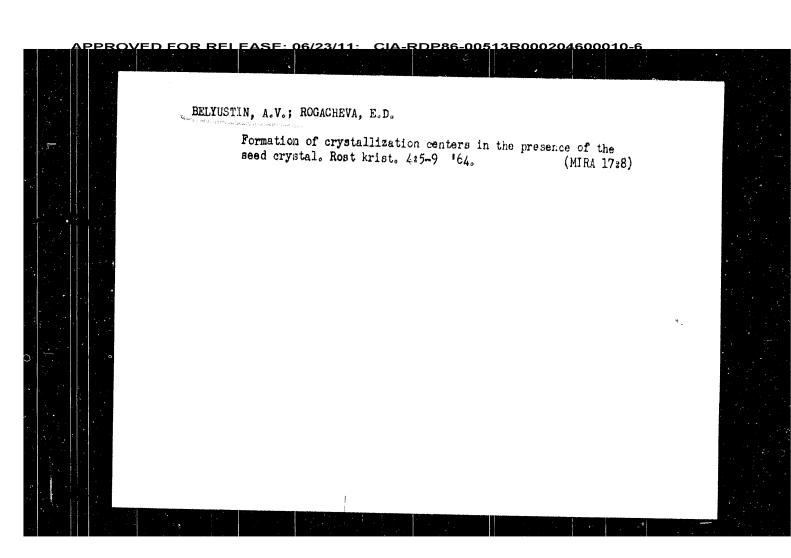
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BELYUSTIN, A.V.; Prinimali uchastiye: KARAMYSHEVA, Zh.V.; VETCKHINA, L.P. Effect of impurities on the growth of crystals and its dependence on the pH of the solution. Rost krist. 4:10-14 *64.

(MIRA 17:8)



APPROVED FOR RELEASE: 06/23/11: __CIA-RDP86-00513R000204600010-6

L 18912-03 ACCESSION NR: AT3001901

lattice therein. Spherical crystallization of 4 substances that pertain to the rhombic syngony is also described, together with the faces developed. A theoretical attempt to find a method for utilizing; the first and second distances between the lattice points in the HKL planes for the construction of the sequence of phases did not lead to any agreement with the experimental data. The experimental findings and the relatively small deviations from the calculated order of the faces do not support any general conclusion on the role of the lattice in their formation. There is no basis for any assertion that the complex of possible faces or the external shape of the crystals (even in a statistical sense) are exclusively determined by the lattice or other geometric conditions. In general it may also be noted that the more complex the structure, the smaller is the significance of the peculiarities of individual atoms or the bonds between them. By contrast, for simple structures, deviations from the calculated complex of faces, probably, will be encountered more frequently. The latter statement is supported by experimental findings with NaCl. Conclusions: (1) The complex of possible faces of a crystal (faces that appear in the crystallization of spheres) is fundamentally determined by its translational lattices, and more especially the reticular plane of its lattice points in the respective planes; (2) small deviations from the calculated order of the faces indicate, that individual peculiarities of the structures exert some, but only a secondary, effect. Orig. art. has I table.

Card 2/3

L 18912-63 ACCESSION NR: AT3001901

EWT(1)/EWP(q)/EWT(p)/BDS

AFFTC/ASD/ESD-3/IJP(C) 5/2912/62/000/000/0108/0113

AUTHOR: Belyustin, A. V.

TITLE: Does the lattice govern the formation of faces in a crystal? SOURCE: Kristallizatsiya i fazovyye perekhody. Minsk, Izd-vo AN BSSR,

TOPIC TAGS: crystal, crystallization, crystallography, face, lattice, lattice

ABSTRACT: This paper comprises a literature survey and a report on experimental findings relative to the effect of impurities in the growing of crystalline faces on crystalline spheres; more specifically, the study investigates the peculiar close connection of the complex of crystalline faces thus developed with the lattice structure, which causes the effect of impurities thereon to be much smaller than would be the case in the growth of crystals from solutions. The experimental crystallization was performed in pure solutions with a very small degree of supersaturation, because more crystalline faces form as we approach the saturation point. A number of crystals of cubic salts were obtained by the spherical-crystal method, and the development of the various faces is discussed in the light of the role of the

Card 1/3

The effect of...

8/564/57/000/000/012/029

Pass through a maximum at ~0.02 g/cm supersaturation

(pure) and at 0.02 = 0.08 g/cm in the presence of borax).

Grystal forms of all substances rested tended to simplify at smaller and greater supersaturations and were also affected by the admirtures tried. The latter did not, however, influence the change of relative rates of growth of various faces.

8/564/57/000/000/012/029 D258/D307 AUTHOR: Belyustin, A. V., and Dvoryankin, V. P. TITLE: The effect of supersaturating the solution on crystal form SOURCE: Rost kristallov; doklady no Pervom soveshchanii po rostu kristallov, 1956 g. Moscow, Izd-vo AN SSSR, 1957, 174-177 The authors measured the relative rates of growth of crystal faces in solutions of Seignette's salt (pure and with admixtures of borax) and K and NH_4^+ alums (with admixtures of $\mathtt{Na}_2\mathtt{CO}_3$) in order to elucidate the effect of solution concentration on form of the resulting crystals. The work was motivated by conflicting results found in the literature. In alums, the relative rates of growth of [111]: [100] faces decreased rapidly with increasing supersaturation, while in Seignette's salt the Card 1/2

The influence of motion and the ... S/070/62/007/002/011/022
over crystallographically different faces and by the consequent redistribution of solute.
There is 1 table.

ASSOCIATION: Issledovatel'skiy fiziko-tekhnicheskiy institut pri Gor'kovskom universitete im. N.I. Lobachevskogo (Physicotechnical Research Institute at Gor'kiy University imeni N.I. Lobachevskiy)

SUBMITTED: March 17, 1961

NPPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204600010-6

24,7100

S/070/62/007/002/011/022 E152/E160

11 15

AUTHORS:

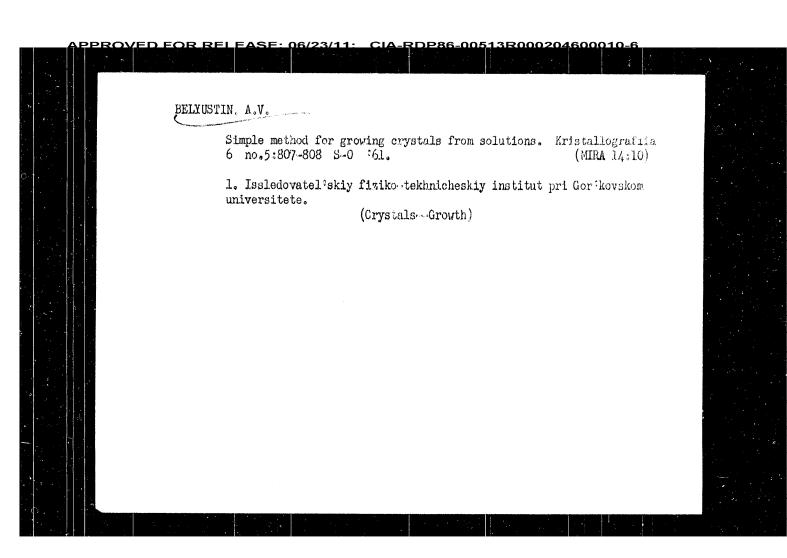
Belvustin, A.V., and Fortnov, V.N.

TITLE:

The influence of motion and the facial development of a crystal on the rate of growth of its faces

PERIODICAL: Kristallografiya, v.7, no.2, 1962, 276-279

TEXT: The rate of growth of faces on crystals of potassium aluminium alum was measured under a variety of conditions. Crystals with natural faces and ground spheres with dimensions about 15-20 mm were used and they were grown in a solution with 2 g/l supersaturation (at 20 °C) sometimes with movement and sometimes without. In dynamic conditions the rate of growth of faces depends more strongly on the state of the surroundings than under static conditions. Planetary and axial rotation exaggerate the rate of growth of those faces which grow more rapidly under static conditions. This is most evident for faces developing on a sphere. The influence of the form and motion of the crystal on the relative growth of its faces can be best explained by the different supersaturations Card 1/2



Crystallization of spheres ...

3/081/62/000/013/002/054 B150/B144

at low concentrations, but a selective effect at high concentrations: At 100% excess of Al₂(30₄)₃ in the alum solution, faces {211} develop notice—ably more actively, while faces {221} are suppressed. The selective effect of an impurity or combination of impurities can spread to the whole range of orientations and the growth of a rounded surface becomes possible. The method of crystallizing spheres explains how an impurity affects the development and quality of a large number of faces, and enables a more thorough study of the general and selective effect of impurities. Impurities that substantially affect the process of crystal growth have a relatively weak effect on the complex of faces appearing on a sphere. Some impurities retard deposition of a substance on considerable sections of the sphere's surface and alter its character in such a way that the corresponding sections remain transparent. [Abstracter's note: Complete translation.]

Card 2/2

5/081/62/000/013/002/054 B150/B144

Belyustin, A. V., Kolina, A. V., Stepanova, K. S.

Orystallization of spheres in the presence of impurities AUTHORSI

Referativnyy zburnal. Khimiya, no. 13, 1962, 43 - 44, TITLE: abstract 13B250 (Sb. "Rost kristallov. v. 3". H., AN SSSR, PERIODICAL:

1961, 152 - 155)

TEXT: The effect of impurities on the form and quality of crystals growing on crystalline spheres from solutions was studied. Tests were carried out on crystallization of spheres of alumopotassium alum and Rochelle salt. Spheres of 10-15 mm dia. were suspended in the solution; thus it was noted which faces appeared in the presence of certain impurities. NaOH and KOH impurities result in the best development of all faces of Rochelle salt and improve their quality; Al₂(SO₄)₃ has a similar effect on alum. In other cases, impurities have a selective effect: H2304 causes a weakening in the {221} faces of alum, and faces {211} become larger. One and the same impurity can have the same effect on all faces Card 1/2

On the Question of the Solubility of Different Faces of a Crystal
There are 1 figure and 5 Soviet references.

ASSOCIATION: Issledovatel'skiy fiziko-tekhnicheskiy institut
Gor'kovskogo universiteta (Physico-technical Research
Institute of Gor'kiy University)

SUBMITTED: March 11, 1958

Card 2/2

AUTHOR:

sov/70-4-4-24/34

TITLE:

Belyustin, A.V.

On the Question of the Solubility of Different Faces of

a Crystal

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 4, pp 609-612 (USSR)

ABSTRACT: In studying the question of the solubilities of different faces of a crystal it is necessary to take into account

the real structure of the crystal and the dimensions and character (stability of the faces. The solubility of stable faces bounded in dimensions of a uniform crystal depends on the boundary conditions. As the dimensions of the faces increase, i.e., as the role of the boundary conditions decreases, the solubilities of all faces approximate to the same value. The transfer of material from a stable face to an unstable one can proceed only in as much as it helps to build up the surface of the latter and bring the system towards an equilibrium state. The results are arrived at theoretically from thermodynamic considerations.

Card1/2

5,4400

s/058/62/000/009/016/069 A006/A101

AUTHOR:

Belyustin, A. V.

TITLE:

On the possibility of determining surface energies of crystals

from equilibrium states

PERIODICAL:

Referativnyy zhurnal, Fizika, no. 9, 1962, 8, abstract 9E58

(In collection: "Rost kristallov, T. 2", Moscow, AN SSSR, 1959,

70 - 72)

The author analyzes methods of determining free surface energy on the crystal-medium interface from the equilibrium state of the crystal in a gravitational field. Equilibrium systems are analyzed where 1) the cubic crystal is located on the crystallizer bottom; 2) a capillary is prepared from the crystal, the capillary being in contact with the mother medium, 3) the crystal is suspended on a thread and its lower section contacts the mother medium; 4) the crystal has grown fast to the crystallizer bottom, 5) the crystal has grown fast to the crystallizer lid, which is entirely filled with the mother medium, 6) two differently oriented crystals have grown fast into the tube of variable

Card 1/2

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* Research Physics - Fechnical chrotists ? How key Unic.	Dislocation in Germani Main Trends in the Study a Admixture (Survey) ry of Congress		worlds and Barton Fluorids for Growing Options. The Errors of Cooling Conditions on the Creation The Creation of Dislocations in Germanium Crysta. Off. A. Varioticaryes. Considing elements exists and i. A. Varioticaryes. Considing elements of the irroring of Microstyvinia, and some Properties of the irroring of Microstyvinia, and some Properties of the irroring of Microstyvinia.	me Crystal and I	Chloride , p. Dobymhanskiy. Apparatus it for the Production of	Respect, No. 1 (1971) at 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	To the last	a the second of two volumes on organical sets on crys and represent the print Company of the print Company of the company of t	adys mank SSER. Institut kristallogusiii kristalloy, tum. 2 (Growth of Grystals, Vol. 2) Noscow, 15 kristalloy issueriad. 2,000 copies prinked. Rabal kristallogusii A. V. Sakhaltor, Anadastolan, and E. E. Copielal, 1 Rabal A. V. Sakhaltor, Anadastolan, and E. E. Or Publishing Bou- salogical and Minralogical Sciences; Ed. of Publishing Bou- salogical and Minralogical Sciences; Palvalores. E. Alexandrov; Sach. Ed.: T. V. Palvalores. Sciences and was accommodity and the province industrial among Table.	DA(C) PRESENT BOOK EXPLOITATION SET (2)53

On the Equilibrium Forms of Crystals in a Gravity Field. 70-5-3/31

A3 OCIATION: Physico-technical Research Institute, Gorkiy University. (Issledovatel'skiy fiziko-tekhnicheskiy Institut Gor'kovskogo universiteta)

SUBLITTED: January 30, 1957.

A AILABLE: Library of Congress

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70-5-3/31

On the Equilibrium Forms of Crystals in a Gravity Field.

where s is the area of the bottom of the vessel. The aspect ratio of the crystal then becomes:

$$h/a = \beta a/(a + \alpha v)$$
 where $\beta = 1/2 + (\sigma_{13} - \sigma_{23})/2\sigma_{12}$.

If the crystal shape is rhombohedral then the first relation becomes h/a = a/(ka + αv), where 1/k is the cosine of the angle between the inclined face of the rhombohedron and the vertical, and the second relation becomes h/a = $\beta a/(ka + \alpha v)$. Using NaNO₃, which is rhombohedral, these two relationships

were tosted; in the second case the crystal, not adhering naturally to the bottom, was cemented down. Variations in shape caused by oscillations in the temperature were found to be completely suppressed by inverting the crystal periodically. Whether free or cemented, the crystal reached a limiting form in equilibrium if the temperature oscillations were small (<5°C). The expressions for h/a derived above were confirmed in their variation with the size of the crystal. β was found to be about 1/2. The times to reach limiting forms varied from a few hours to a few days. Acknowledgments to Card2/3 Academician A.V. Shubnikov. There are 3 Slavic references.

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204600010-6

AUTIOR: Belyustin, A.V. 70-5-3/31

TITIE: On the Equilibrium Forms of Crystals in a Grevity Field (O ravnovesnoy forme kristallov v pole sily tyazhesti)

PERIODICAL: Kristallografiya, 1957, Vol.2, No.5, pp. 590-593 (USSR)

ABSTRACT: The effect of gravitational forces on the equilibrium shape of a crystal growing from a solution on the bottom of a vessel is examined. For a crystal bounded by cube faces, the height of the tetragonal prism dictated by the symmetry of the physical conditions is h and its width a. If the density of the crystal is θ₁ and of the solution θ₂, then the potential energy of the crystal is V = 1/2 g (θ₁ - θ₂)a²h².

If σ₁₂ is the specific surface energy crystal/solution, the surface energy is W = (2a² + 4ah)σ₁₂ so that the free energy is F = V + W. The condition for minimum free energy, df/da = 0 gives h/a = a/(a + αν), where a² = v/h and α = g(θ₁ - θ₂)/4σ₁₂. If the crystal grows in contact with the Lettom of the vessel there are further surface energy terms making W = (a² + 4ah) σ₁₂ + a²σ₁₃ + (s - a²)σ₂₃ Card 1/3

USSR / Physical Chemistry. Crystals.

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 25982

Abstract : 0.054 mm/hour, and with a 100% excess of K⁺ it is 0.035 mm/hour. The cube faces increase and the rhombododecahedron faces diminish, if Al²⁺ were in excess. If NNL, or K⁺ were in excess, the opposite is observed.

Card : 2/2

3-5

BELYUSTIN A. V.

USSR / Physical Chemistry. Crystals.

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 25982

Author

: A.V. Belyustin

Inst

: Academy of Sciences of USSR

Title

: Influence of Excess of One of Components on Growth Speed of

Crystals of Double Salts in Solution.

Orig Pub : Tr. In-ta kristallogr. AN SSSR, 1956, vyp. 12, 73 - 78

Abstract : Crystals of KAL(SO_{|\phi})2.12H2O, NH_{|\phi}Al(SO_{|\phi})2.12H2) and (NH_{|\phi})2Ni (SO_{|\phi})2.6H2O were grown at 20° in supersaturated aqueous solutions prepared by dissolving crystals of these alums. The speed of the crystal growth increases with the addition to the solution of the component (sulfate) containing cations of lesser mobility (Al)+, Ni2+), and it decreases at an excess of cations of greater mobility (K+, NH_{||}). At a certain excess of Al)+ or Ni3+, the speed reaches a maximum. The linear speed of growth of $KA_1(SO_{l_1})_2 \cdot 12H_2O$ is $0 \cdot 0h_2 \text{ mm/hour}$ in case of a pure solution, with a 100% excess of Al3+it is

Card

: 1/2

USSR/Physics - Crystal growth

FD-2347

Card 1/1

Pub. 146 - 12/34

Author

: Belyustin, A. V.

Title

: Discussion. Theory of crystal growth (concerning the article of

I. V. Salli, ibidem, 25, 208, 1953)

Periodical

: Zhur. eksp. i teor. fiz. 28, 725-726, Jun 1955

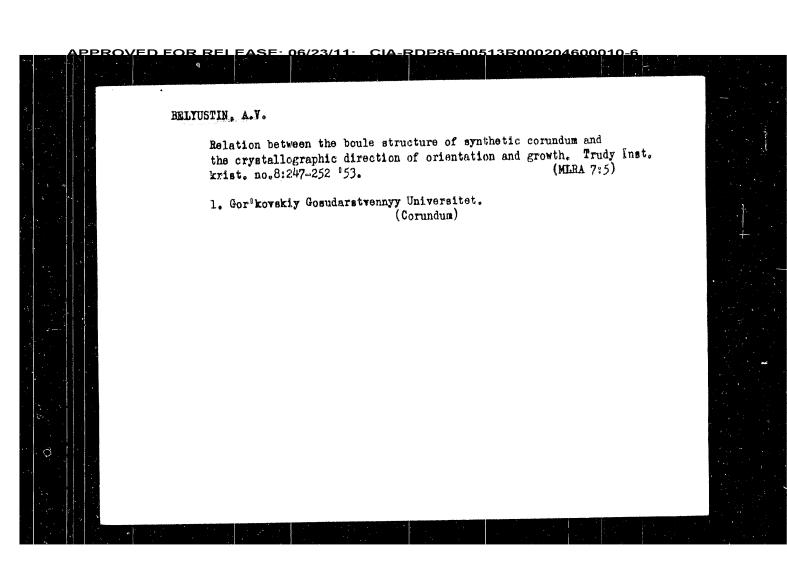
Abstract

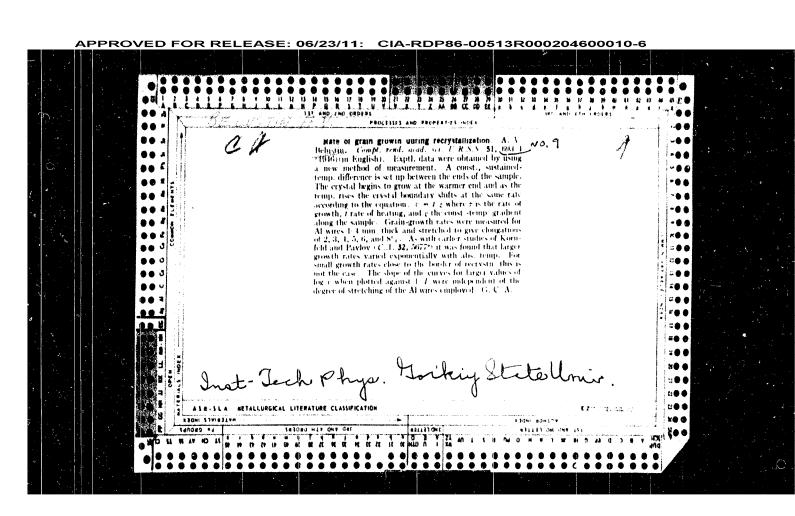
: The present writer claims that I. V. Salli made a number of erroneous statements in his article "Theory of crystal growth" which considerably depreciate the conclusions arrived at by the writer. At the basis of I. V. Salli's discussions lie his formula (5) for the linear rate of growth u of a spherical nucleus of the new phase and the well known assumptions proceeding from it, namely: $u = Dv(\Delta - a/r) (1/x + 1/r)$, after the necessary correction of a factor 2 (otherwise the volume of sphere is 2 mr3/2!). Three references: e. g. V. D. Kuznetsov, Kristally i kristallizatziya, GITTL, 1953; Obrazovaniye kristallov, Acad. Sci. USSR Press, 1947.

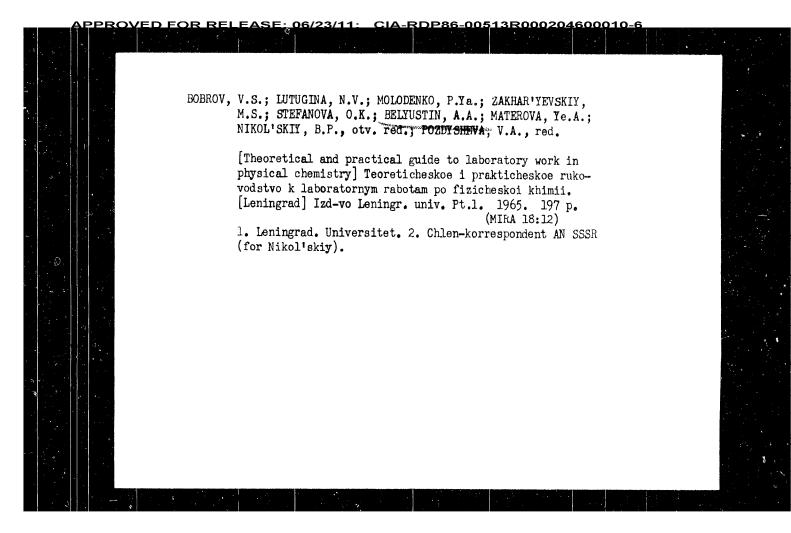
Institution : Gor'kiy Physicotechnical Institute

Submitted

: October 27, 1953







I. 00770-66

ACCESSION RR: AP5012556

glass are obtained as functions of the Fe₂O₃ concentration in the glass and of the amount and nature of the alkali iron. It is shown that the Moshauer effect can be used to detect iron oxides colloidally dispersed in glass. "The authors thank A.* N. Murin and Dogont M. M. Shull'ts, who stimulated their interest in this topic, and also A. I. Schill'if, V. I. Khlush M. A. Marchin, and G. V. Pilinetto for help with the measurements." Orig. art. has: 7 figures, 7 formulas, and 2 tables.

ASSOCIATION: 0"yedinennyy institut yedernykh issledovaniy (Joint Institute of Nuclear Research) in Lepingradskiy gosudarstvennyy universitet (Leningras State)

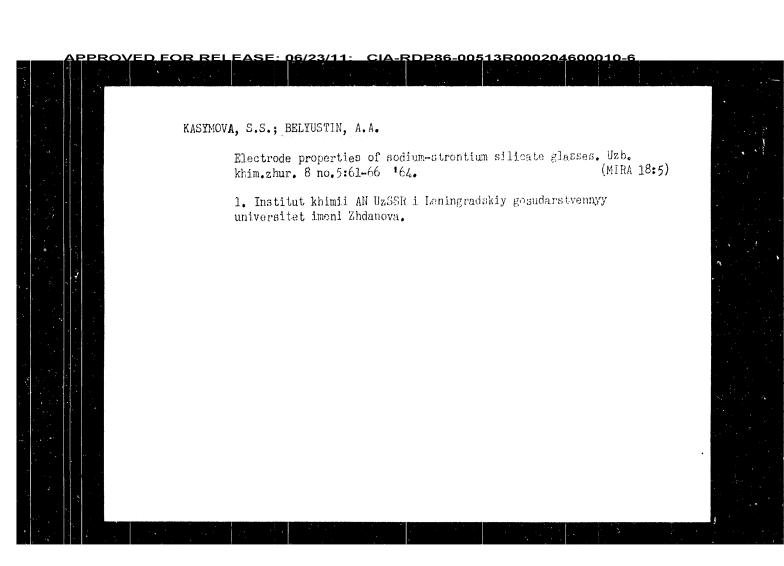
Diversity)

SUMMITTED: O'Thech ENCL: 00 SUB CODE: SS

NR REF SOV: 010 OTHER: 008

EWT(1)/EWP(e)/ - \m)/EMP(1)/FCO/T/EWP(t)/EWP(b)/EMA(c) L 00770-66 JD/JG/JAJ /WH ACCESSION NR: AP5012556 UR/0181/65/007/005/1447/1454 Wu, Pai-shin; Cher, In 44, TITLE: The Mosshauer effect in alkali-iron-silicate glasses 144 SOURCE: Fizika tverdogo tela, v. 7, no. 5, 1965, 1447-1454 TOPIC TAGS: Mossbauer effect, emission line, glass property, silicate glass, line splitting ABSTRACT: The authors investigated the Mossbauer effect with the aid of apparatus with simusoidal motion, described briefly elsewhere (ZhETF v. 46, 482, 1964). The source was Co⁵⁷, introduced by <u>diffusion</u> into metallic chromium.) The width of the emission line was 0.35 mm/sec, and the position of the <u>emission</u> line practically coincided with the absorption line of stainless steel. The absorbers were powdered glass pressed together with small amounts of Mg(). All the measurements were made at room temperature. Various compositions of glass were investigated. Values were obtained for the main parameters of the Mossbauer spectra (line width, chemical shift, quadrupole splitting). It is shown that the form of the Mossbauer spectra is governed by the main features of the structure and chemical composition of the glasses. The ratios of the different valence and structural states of iron in the Card 1/2

BELYUSTIN, A.A.; PISAREVSKIY, A.M. (Leningrad) Structural state of iron in glass from studies of the electrode properties of sodium iron silicate glasses. Zhur. fiz. khim. 38 no.12:2913-2919 D '64. (MIRA 18:2) 1. Leningradskiy gosudarstvennyy ordena Lenina universitet imeni A.A. Zhdanova.



BELYUSTIN, A.A.; OSTANEVICH, YU.M.; PISAREVSKIY, A.M.; TOMILOV, S.B.; U BAY-SRI; CHUR, L. Mossbauer effect in sikali forrosilicate glassos. rlz. tver. tela 7 no.5: (HIRA 18:5) 1447-1454 My 165. 1. On'yedinennyy instatut yedernykh isoledovaniy i kaningradakiy gosudarstvennyy university.

<u> APPROVED FOR RELFASE: 06/23/11: CIA-RDP86-00513R000204600010-6</u>

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produced differentiation with respect to the stability of the bonds to $\rm H^+ions$ similar to that obtained for the $\rm R_2O_3$ oxides. In sodium and lithium silicate glasses, $\rm ZrO_2$ showed similar results. The electrode behavior of alkali silicate glasses into which oxides of Ti and Zr are incorporated can be explained by the formation of bonds in which the atoms of these elements are surrounded by oxygen in such a way that a complex is formed which carries a negative charge and which determines the predominantly ionic bond of hydrogen in the glass. Addition of barium oxide to lithium silicate glasses containing $\rm ZrO_2$ seems to abolish the glass forming properties of $\rm ZrO_2$. Orig. art. has: 7 figures.

ASSOCIATION: none

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Card 3/3

ACCESSION NR: AT4040547 the series of 24% Li₂O-X% R₂O₃ - (76-X)% SiO₂, when R=B, Al, Ga, in order to obtain the same effect it is necessary to incorporate more Ga2O3 than Al2O3 and more B2O3 than Ga2O3, which means that the effect of Ga2O3 on the electrode properties is between the effects of B2O3 and Al2O3. Analogous results were obtained with glasses containing 27 and 30% LiO₂. In glass of the system 22% Na₅O-X% Ga₂O₂-(78-X)% SiO₂, added gallium acts as a glass former and to some extent as a modifier. In a system containing 22% $\rm Na_2O-X\%~In_2O_3-(78-X)\%~SiO_2$, it was observed that the deviation from the hydrogen function increased with an increase in $\rm In_2O_3$, but was less than with Ga_2O_3 . In glass of the system 22% $Na_2O - 4\%$ $R_2O_3 - 74\%$ SiO₂ (R=B, Al, Ga and In), the effect of the R2O3 oxides on the electrode behavior of sodium silicate glasses decreased in the order Al > Ga)B>In, as in the lithium silicate glasses. This order is characteristic for glasses when $[R_2O_3]/[Na_2O] < 0.3$. If $0.3 < [R_2O_3]/[Na_2O]$ < 1, the order is different: A > B > Ga > In; while if [R2O3]/[Na2O] > 1, the order is Ba > Al > Ga > In. In the system $Na_2O-TiO_2-SiO_2$ where $Na_2O=16-22$ mol. %, the effects were characteristic for the oxides of glass formers, and analogous data were obtained with some LiO2-TiO2-SiO2 systems. Relatively small amounts of TiO2 $\operatorname{Cord}^{2/3}$

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AUTHOR: Shul'ts, M.M., Peshekhonova, N.V., Belyustin, A.A., Parfenov, A.I., Bobrov, V.S.

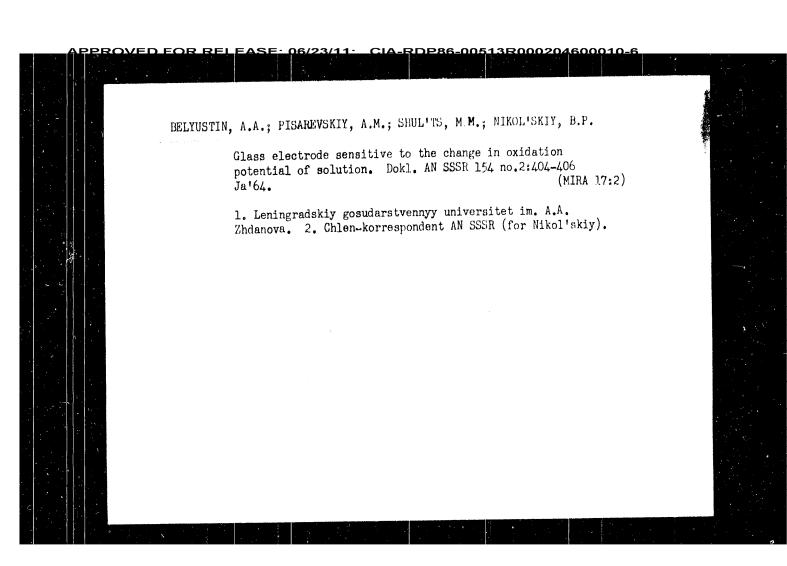
TITLE: Electrode properties of alkali silicate glasses containing the oxides of gallium, indium, titanium and zirconium

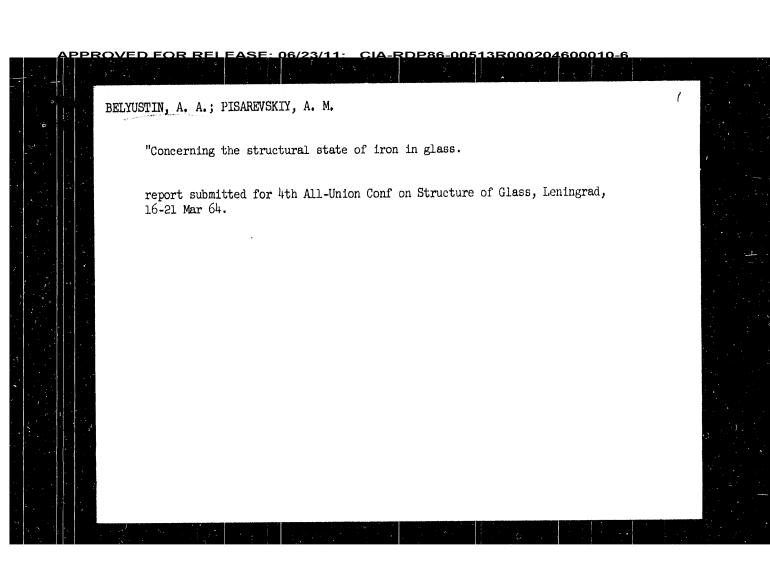
SOURCE: Soveshchaniye po khimii redkikh elementov. Leningrad, 1961. Khimiya redkikh elementov (Chemistry of rare elements); doklady* soveshchaniya. Leningrad, Izd-vo Leningr. univ., 1964, 96-105

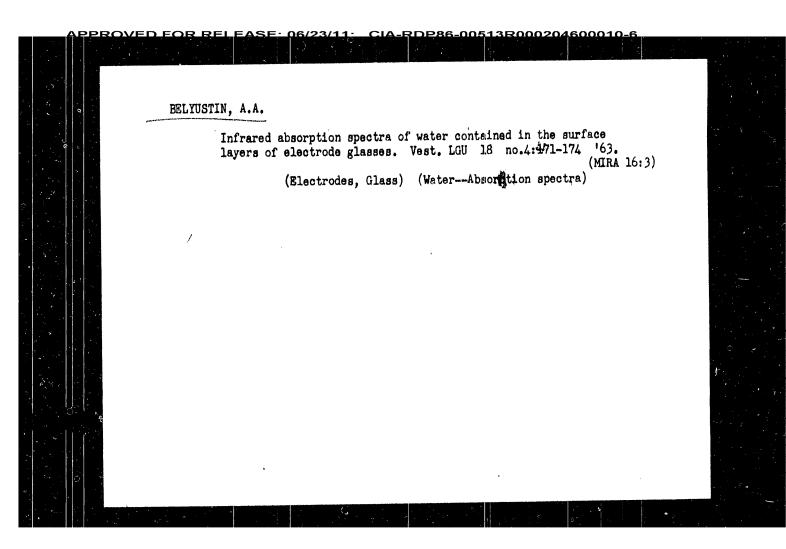
TOPIC TAGS: glass, silicate glass, electrode behavior, silicate glass electrical property, rare earth oxide, alkali silicate glass, gallium oxide, indium oxide, titanium oxide, zirconium oxide

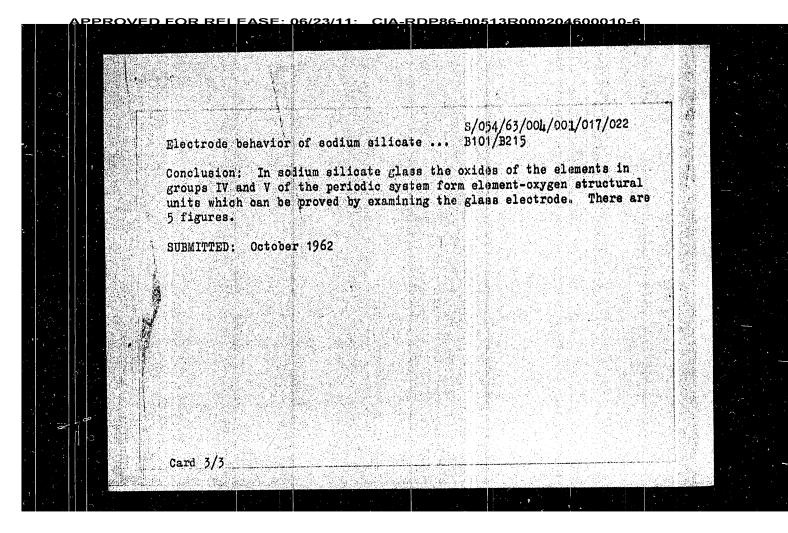
ABSTRACT: After a theoretical review of the electrode properties of various glasses and the relationship between the EMF of an Ag AgCl, HCl glass buffer KCl, IIg₂Cl₂ Hg cell and pH, the authors describe the effect of the addition of various amounts of rare oxides to lithium-silicate, lithium-aluminium-silicate, sodium-aluminium-silicate, and sodium-barium-aluminium-silicate glasses. In glasses of

Card 1/3









5/054/63/001/001/017/022 B101/B215 Electrode behavior of sodium silicate ... narrower owing to the formation of strongly ionogenic GeO6/2 2- groups whose content is lower than that of GeO groups. (3) SnO2 addition causes intensive formation of $\left[\frac{1}{6}\right]^{2-4}$ groups; the effect of the glass forming oxide is very distinct and is comparable to that of Al203. (4) Classes containing more than 4 mole st P20 $_{5}$ were unstable, they dissolved rapidly in 0.1 N HCl. The curve E versus pH consists of two intersecting lines, the inclination of the second section being 24 - 33 mv/pH, i. e. close to v/2. The important more residual to be responsible for the above phenomenon. Addition of BaO neutralizes the effect of P205. (5) Sb203 and Bi203 yielded only very unstable glasses. but various series of tests gave orientation data. In Sb203, the effect of the glass-forming oxide Sb₂O₃ which yields [5bO₄/2] groups becomes superposed on the effect of the modifying ions Sb^{III} (probably SbO⁺ ion). The formation of ibnogenic $[Sb0_6/2]^2$ groups is possible. In Bi_20_3 , the effect of the strongly acid groups decreases as the Bi, O, content increases. Card 2/3